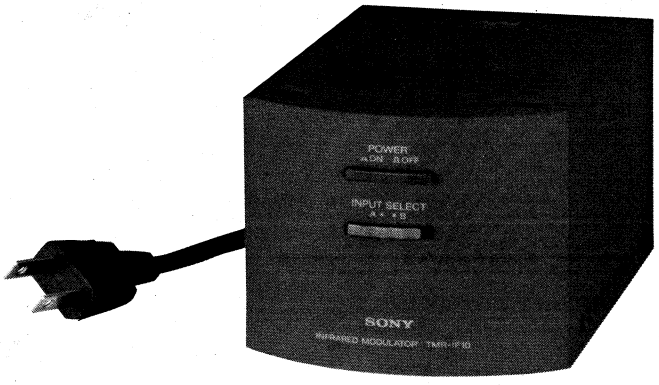
TMR-IF10

SERVICE MANUAL

AEP Model
E Model



This model is sold with infrared emitter (IFP-10) whose service manual is separately issued.

SPECIFICATIONS

General

Infrared wavelength:	850 nm
Modulation:	Frequency modulation
Carrier frequency:	Right 2.8 MHz Left 2.3 MHz
Effective range:	Up to 7 m (23 ft)
Frequency response:	18 - 22,000 Hz
Distortion:	Less than 1% at 1 kHz

Modulator TMR-IF10

Power source:	European model: 220 V AC, 50 Hz Models for other countries: 110 – 120 V or 220 – 240 V AC Adjustable, 50/60 Hz
Audio input:	A (phono jacks), B (stereo mini jack)
Emitter output:	F connector × 2
Dimensions:	90 × 73 × 140 mm ($3^5/_8 \times 2^7/_8 \times 5^5/_8$ in)
Weight:	Approx. 740 g (26.1 oz.)

Design and specifications subject to change without notice.

Overview

The TMR-IF10K is an infrared transmitter for the infrared receivers, such as the cordless stereo headphones MDR-IF510. You can use this unit as an additional transmitter to expand the effective area of infrared ray, in addition to using it as a main transmitter connected to audio/video equipment.

Features

- Infrared-ray system is not affected by radio noise.
- The modulator can be used with any audio/video equipment with a headphone jack or line/recording out jacks.
- You can expand the effective area of infrared ray by using additional emitters (IFP-10 emitter and/or another TMR-IF10K transmitter, not supplied, are necessary).

Note
If you use the infrared receiver at too great a distance from the emitter, you may hear a hissing sound and if there is an object between the receiver unit and the emitter, the sound may be interrupted. These phenomena are inherent to infrared-ray communication and do not mean there is a problem with the unit itself.

MICROFILM

INFRARED TRANSMITTER

SONY®

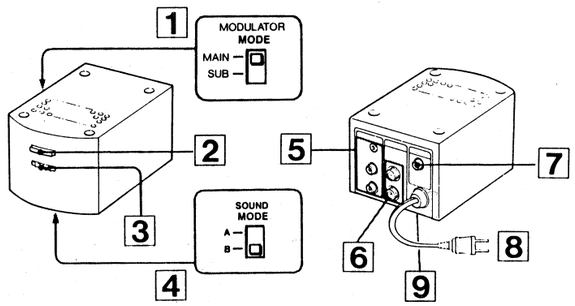
SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SECTION 1
GENERAL

LOCATION AND FUNCTION OF CONTROLS

Modulator



1 MODULATOR MODE switch
Set the switch according to the table below. **If it is not set properly, no sound will be output.**

When using as a main unit	Set the switch to MAIN
When using as an additional unit	Set the switch on the modulator connected to audio/video equipment to MAIN, and the switch on the other modulator to SUB.

2 POWER switch
Press to turn on the modulator and the emitter. When they are turned on, the switch glows green. To turn off, press it again.

3 INPUT SELECT switch
Selects the equipment connected to AUDIO IN A or B jacks.

4 SOUND MODE switch
Set to A or B in accordance with the type of your receiver.

5 AUDIO IN jacks
A-phono jacks B-stereo mini jack

6 TO EMITTER 1 and 2 connectors
Connect the emitter cord. Two emitters can be connected to the modulator.

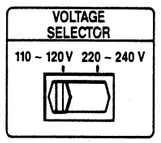
Caution
Do not connect anything other than the emitter. Because DC current is output, you may impair the connected equipment.

7 TO ADDITIONAL MODULATOR jack
If you use an additional modulator, connect it to this jack with a video cable. When using the additional modulator, be sure to set MODULATOR MODE switch properly.

8 AC power cord
Connect to a wall outlet.

9 VOLTAGE SELECTOR switch

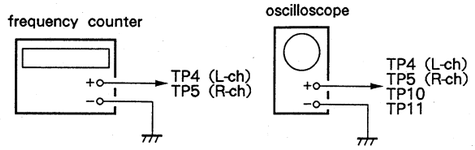
For the customers of the model equipped with the voltage selector
Check that the voltage selector is set to the local power line voltage. If not, set the selector to the correct position before connecting the AC power cord to a wal outlet.

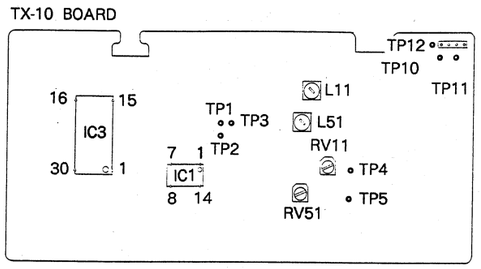


SECTION 2
ELECTRICAL ADJUSTMENTS

1. Adjust in the order given.
2. Adjust or measure every channels unless otherwise specified.

[Connection and Adjustment Location]





[Oscillating Frequency Adjustment]

Procedure: No signal state.
1. Short-circuit between TP1 and TP3 (L-ch) or TP2 and TP3 (R-ch).
2. Connect a frequency counter to TP4 (L-ch) or TP5 (R-ch).
3. Adjust with L11 or L51 so that the reading on the frequency counter becomes to the adjusting value.

Adjusting value:

L-ch	L11	2.3 MHz ± 3 kHz
R-ch	L51	2.8 MHz ± 3 kHz

[RF Level Adjsutment]

Procedure: No signal state.
1. Connect a oscilloscope to TP4 (L-ch) or TP5 (R-ch).
2. Adjust with RV11 or RV51 so that the reading on the oscilloscope becomes to the adjusting value.

Adjusting Value:

L-ch	RV11	1 Vp-p – 1.1 Vp-p
R-ch	RV51	1 Vp-p – 1.1 Vp-p

3. Connect a oscilloscope to TP10 or TP11.
4. Check the level without load (IFP-10 is not connected).
   Checking value: 3.0 – 3.2 Vp-p
5. Remove the short-circuit position TP1 – TP3 and TP2 – TP3.

3-1. PRINTED WIRING BOARDS

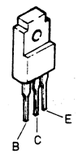
Note:

- ○—— : parts extracted from the component side.

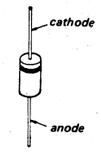
• Semiconductor Lead Layouts

M5237L

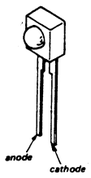
2SB1187-EF



10E-2



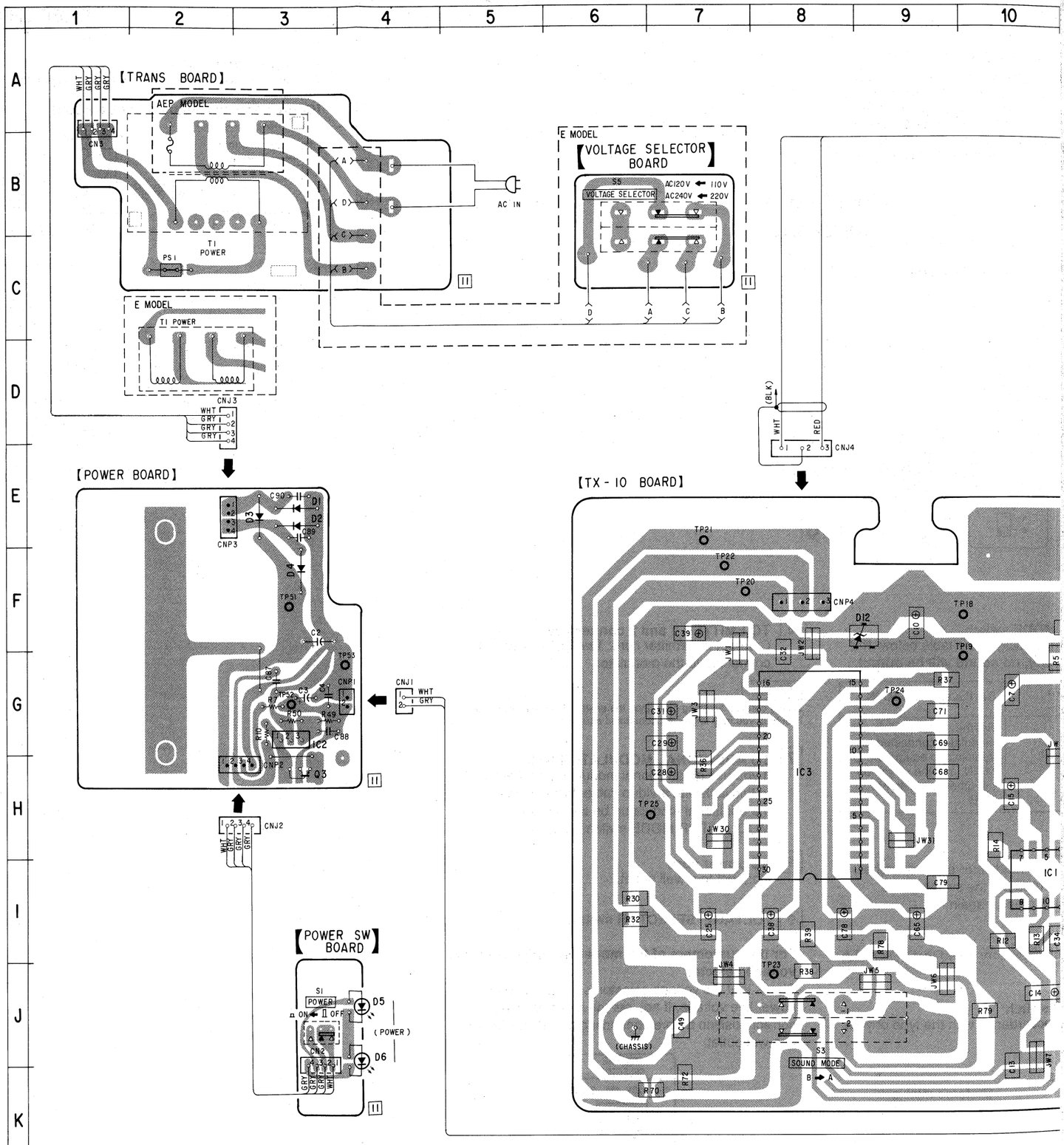
TLG223

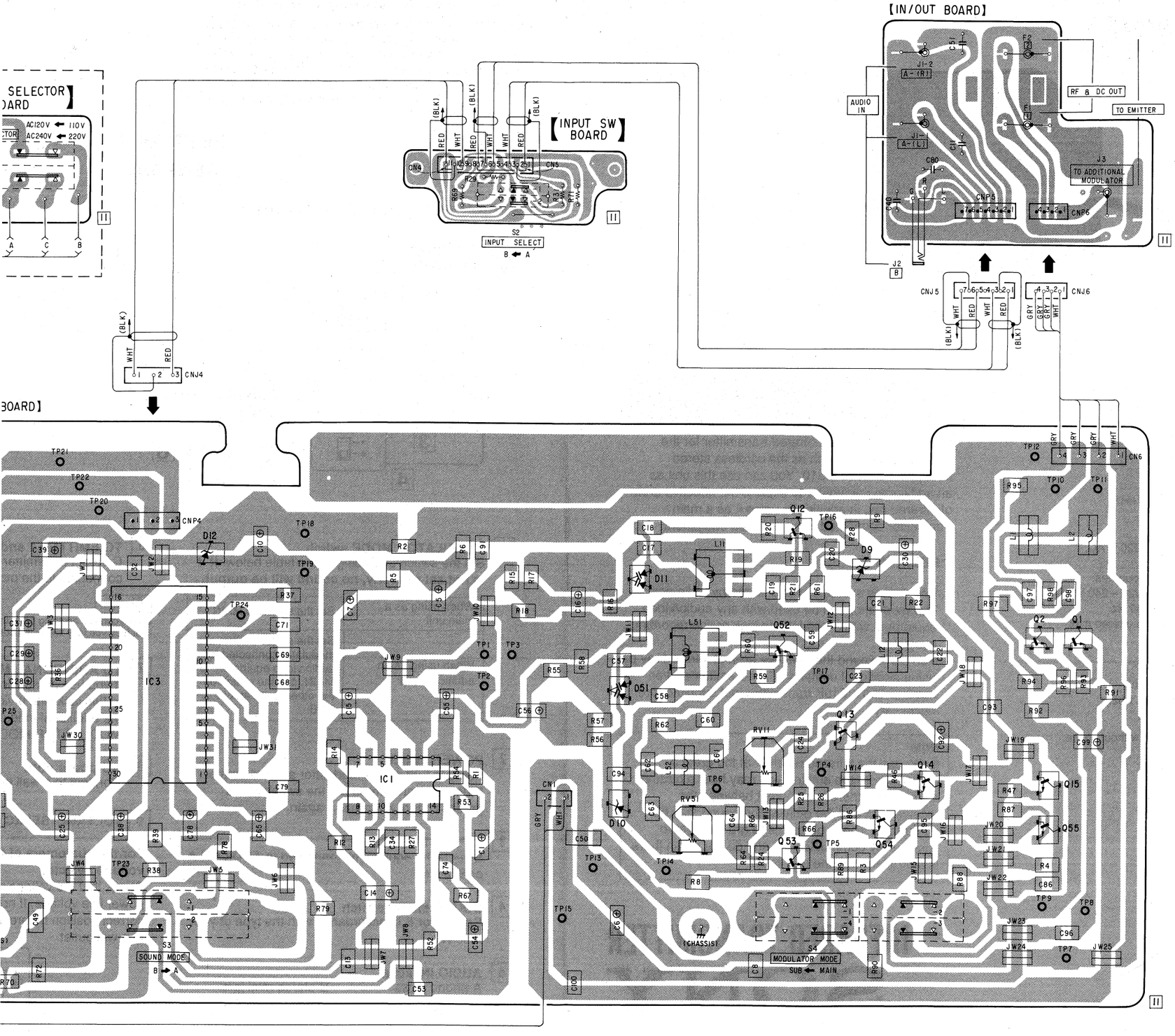


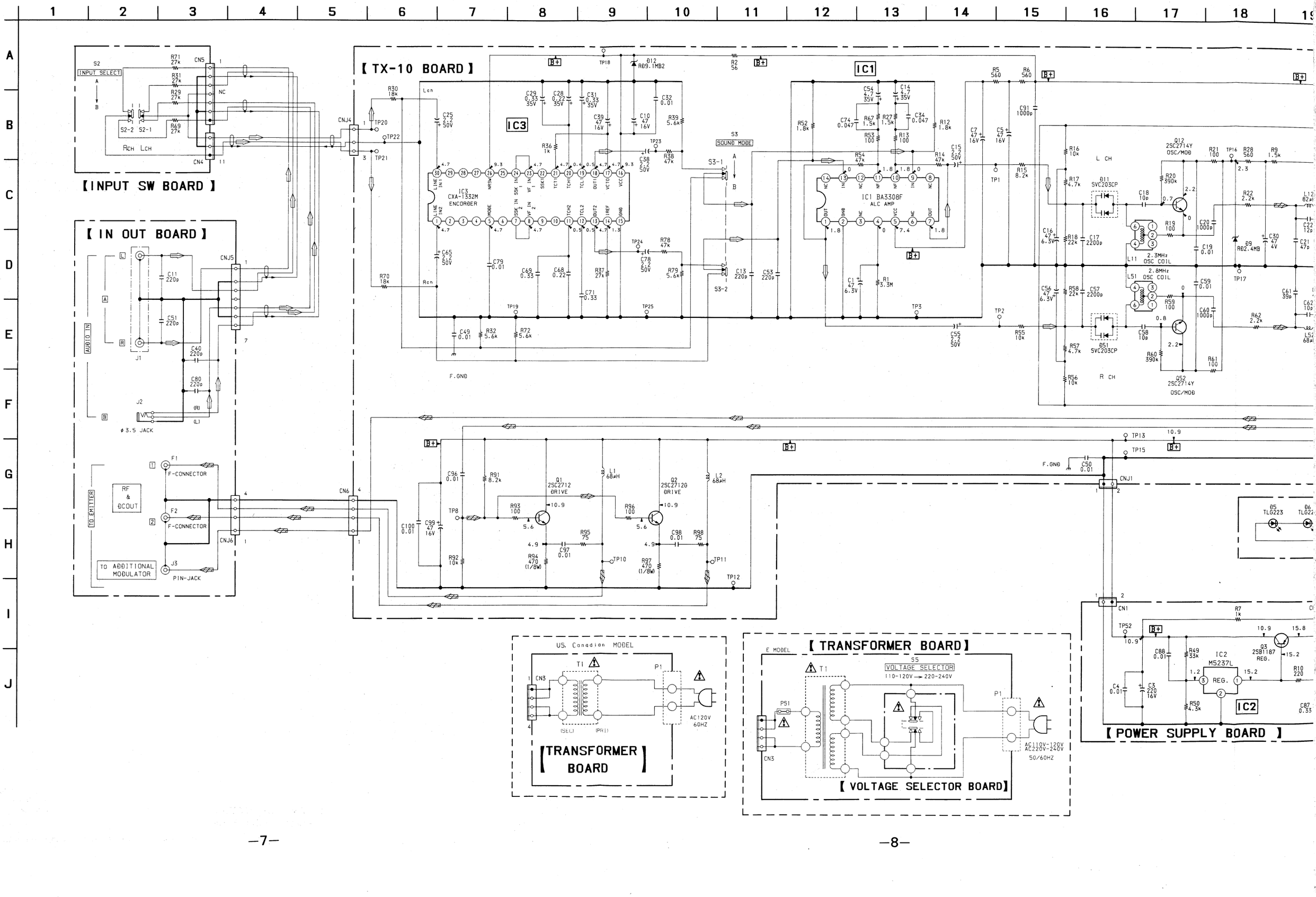
• Semiconductor Location

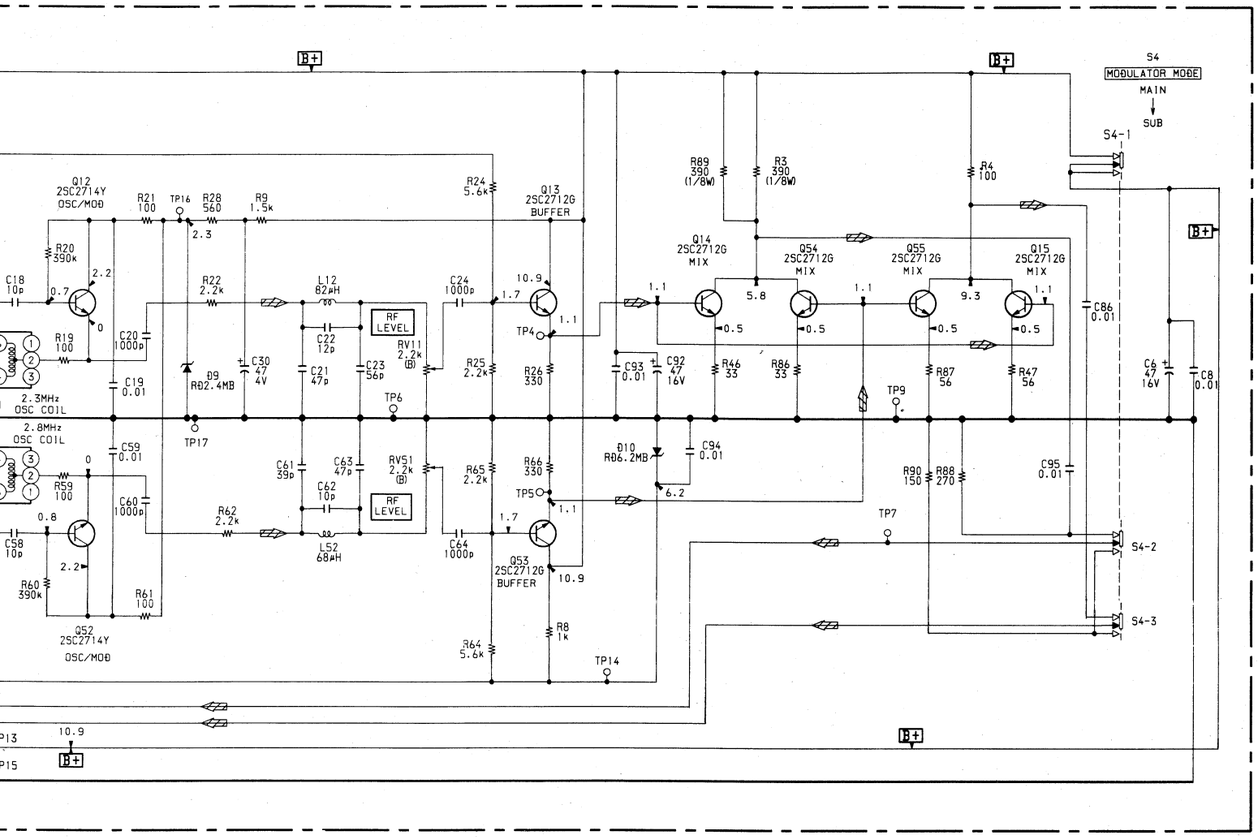
Ref. No.	Location
D1	E-3
D2	E-3
D3	E-3
D4	F-3
D5	J-4
D6	J-4
D9	F-15
D10	I-13
D11	G-13
D12	F-9
D51	H-13
IC1	I-10
IC2	G-3
IC3	H-8
Q1	G-17
Q2	G-17
Q3	H-3
Q12	F-15
Q13	H-15
Q14	I-16
Q15	I-17
Q52	G-14
Q53	I-15
Q54	I-15
Q55	I-17

SECTION 3
DIAGRAMS




SELECTOR】
OARD
AC120V ← 110V
AC240V ← 220V
A
C
B
【INPUT SW BOARD】
(BLK)
RED
WHT
CN8
CN5
S2
INPUT SELECT
B ← A
【IN/OUT BOARD】
AUDIO IN
J1-2
A-(R)
J1-1
A-(L)
RF & DC OUT
TO EMITTER
J3
TO ADDITIONAL MODULATOR
CNP5
CNP6
J2
B
CNJ5
CNJ6
GRY
CNJ4
BOARD】
CNP4
D12
IC3
IC1
S3
SOUND MODE
B ← A
Q12
Q52
Q53
Q54
Q13
Q14
Q15
Q55
Q1
Q2
D11
D51
D10
D9
RV11
RV51
CN1
CN6
S4
MODULATOR MODE
SUB ← MAIN
(CHASSIS)


【INPUT SW BOARD】
【IN OUT BOARD】
【TX-10 BOARD】
IC1 BA3308F ALC AMP
IC3 CXA-1332M ENCORDER
Q1 2SC2712 DRIVE
Q2 2SC2712G DRIVE
Q12 2SC2714Y OSC/MOD
Q52 2SC2714Y OSC/MOD
Q3 2SB1187 REG.
IC2 M5237L
D11 SVC203CP
D51 SVC203CP
D9 RD2.4MB
D12 RD9.1MB2
D5 TLG223
D6 TLG224
L CH
R CH
2.3MHz OSC COIL
2.8MHz OSC COIL
F.GND
【TRANSFORMER BOARD】
US. Canadian MODEL
E MODEL
【VOLTAGE SELECTOR BOARD】
【POWER SUPPLY BOARD】



Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- B + : B + Line.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (10 MΩ/V).
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : Audio signal
  ⇨ : RF signal

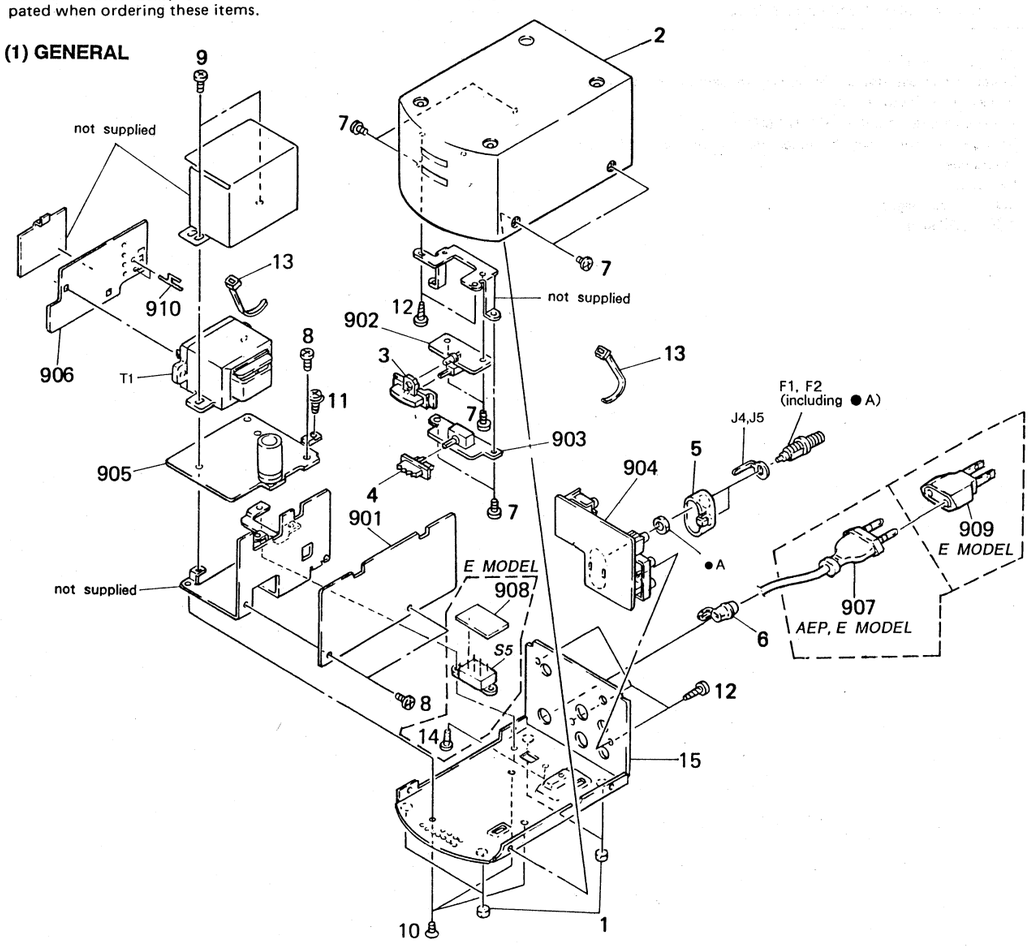
SECTION 4
EXPLODED VIEW

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.
- Color Indication of Appearance Parts
  Example:
  (RED) . . . KNOB, BALANCE (WHITE)
  ↑ Cabinet's Color ↑ Parts' Color

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(1) GENERAL



No.	Part No.	Description	Remarks
1	2-145-108-01	FOOT	
2	2-145-106-21	CABINET	
3	2-136-293-01	BUTTON, PUSH	
4	2-136-292-01	KNOB	
5	2-136-291-01	HOLDER, CONNECTOR	
6	2-391-456-01	(AEP)...BUSHING (CM-22B)	
	2-392-799-01	(E).....BUSHING, CORD	
7	7-621-775-10	SCREW +B 2.6X4	
8	7-682-545-09	SCREW +P 3X4	
9	7-682-549-09	SCREW +P 3X10	
10	7-682-247-09	SCREW +K 3X6	
11	7-682-903-01	SCREW +PWH 3X5	
12	7-685-645-79	SCREW +P 3X6 TYPE2 NON-SLIT	
13	*3-337-402-01	BAND, BINDING	
14	7-682-248-09	(E)...SCREW +K 3X8	
15	*2-145-105-01	CHASSIS	
901	*A-4538-085-A	MOUNTED PCB, TX-10	
902	*1-634-811-11	PC BOARD, POWER SW	
903	*1-634-812-11	PC BOARD, INPUT SW	
904	*1-634-813-11	PC BOARD, IN.OUT	
905	*1-634-814-11	PC BOARD, POWER	
906	*1-634-815-11	(AEP,E)...PC BOARD, TRANCE	
907	⚠1-555-795-00	(AEP,E)...CORD, POWER	
908	1-636-053-12	(E)...PC BOARD, VOLTAGE SELECTION SW	
909	⚠1-569-008-11	(E)...ADAPTOR, CONVERTION	
910	1-535-416-00	TERMINAL	
F1	1-507-410-00	RECEPTACLE (F TYPE)(RF/DC OUT 1)	
F2	1-507-410-00	RECEPTACLE (F TYPE)(RF/DC OUT 2)	
J4	2-136-288-01	LUG	
J5	2-136-288-01	LUG	
S5	⚠1-570-173-21	(E)...SWITCH, VOLTAGE CHANGE (VOLTAGE SELECTOR)	
T1	⚠1-450-186-11	(E).....TRANSFORMER, POWER	
T1	⚠1-450-187-11	(AEP)...TRANSFORMER, POWER	

SECTION 5
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description			
901	*A-4538-085-A	MOUNTED PCB, TX-10			
902	*1-634-811-11	PC BOARD, POWER SW			
903	*1-634-812-11	PC BOARD, INPUT SW			
904	*1-634-813-11	PC BOARD, IN.OUT			
905	*1-634-814-11	PC BOARD, POWER			
906	*1-634-815-11	(AEP,E)...PC BOARD, TRANCE			
907	⚠1-555-795-00	(AEP,E)...CORD, POWER			
908	1-636-053-12	(E)...PC BOARD, VOLTAGE SELECTION SW			
909	⚠1-569-008-11	(E)...ADAPTOR, CONVERTION			
910	1-535-416-00	TERMINAL			
C1	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C2	1-124-564-11	ELECT	4700MF	20%	25V
C3	1-124-120-11	ELECT	220MF	20%	16V
C4	1-161-051-00	CERAMIC	0.01MF	10%	25V
C5	1-126-204-11	ELECT CHIP	47MF	20%	16V
C6	1-126-204-11	ELECT CHIP	47MF	20%	16V
C7	1-126-204-11	ELECT CHIP	47MF	20%	16V
C8	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C10	1-126-204-11	ELECT CHIP	47MF	20%	16V
C11	1-102-110-00	CERAMIC	220PF	10%	50V
C13	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C14	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C15	1-126-601-11	ELECT CHIP	2.2MF	20%	50V
C16	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C17	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C18	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C19	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C20	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C21	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C22	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C23	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C24	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C25	1-126-601-11	ELECT CHIP	2.2MF	20%	50V
C28	1-135-072-21	TANTAL. CHIP	0.22MF	20%	35V
C29	1-135-073-00	TANTAL. CHIP	0.33MF	20%	35V
C30	1-126-607-11	ELECT CHIP	47MF	20%	4V
C31	1-135-073-00	TANTAL. CHIP	0.33MF	20%	35V
C32	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C34	1-163-809-11	CERAMIC CHIP	0.047MF	5%	25V
C38	1-126-601-11	ELECT CHIP	2.2MF	20%	50V
C39	1-126-204-11	ELECT CHIP	47MF	20%	16V
C40	1-102-110-00	CERAMIC	220PF	10%	50V
C49	1-163-059-00	CERAMIC CHIP	0.01MF		50V
C50	1-163-059-00	CERAMIC CHIP	0.01MF		50V
C51	1-102-110-00	CERAMIC	220PF	10%	50V
C53	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C54	1-126-603-11	ELECT CHIP	4.7MF	20%	35V
C55	1-126-601-11	ELECT CHIP	2.2MF	20%	50V
C56	1-126-205-11	ELECT CHIP	47MF	20%	6.3V
C57	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C58	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C59	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C60	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C61	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C62	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C63	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C64	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C65	1-126-601-11	ELECT CHIP	2.2MF	20%	50V
C68	1-135-072-21	TANTAL. CHIP	0.22MF	20%	35V
C69	1-135-073-00	TANTAL. CHIP	0.33MF	20%	35V
C71	1-135-073-00	TANTAL. CHIP	0.33MF	20%	35V
C74	1-163-809-11	CERAMIC CHIP	0.047MF	5%	25V
C78	1-126-601-11	ELECT CHIP	2.2MF	20%	50V
C79	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C80	1-102-110-00	CERAMIC	220PF	10%	50V
C86	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C87	1-136-840-11	FILM	0.33MF	5%	50V
C88	1-161-051-00	CERAMIC	0.01MF	10%	25V
C89	1-161-051-00	CERAMIC	0.01MF	10%	25V
C90	1-161-051-00	CERAMIC	0.01MF	10%	25V
C91	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C92	1-126-204-11	ELECT CHIP	47MF	20%	16V
C93	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C94	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C95	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C96	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C97	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C98	1-164-232-11	CERAMIC CHIP	0.01MF		50V
C99	1-126-204-11	ELECT CHIP	47MF	20%	16V
C100	1-164-232-11	CERAMIC CHIP	0.01MF		50V
CN1	*1-564-704-11	PIN, CONNECTOR (SMALL TYPE) 2P			
CN2	*1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P			
CN3	*1-564-706-11	PIN, CONNECTOR (SMALL TYPE) 4P			
CN4	*1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P			
CN5	*1-564-723-11	PIN, CONNECTOR (SMALL TYPE) 7P			
CN6	*1-564-720-11	PIN, CONNECTOR (SMALL TYPE) 4P			
D1	8-719-200-02	DIODE 10E-2			
D2	8-719-200-02	DIODE 10E-2			
D3	8-719-200-02	DIODE 10E-2			

Ref.No.	Part No.	Description
D4	8-719-200-02	DIODE 10E-2
D5	8-719-800-99	DIODE TLG223
D6	8-719-800-99	DIODE TLG223
D9	8-719-105-28	DIODE RD2.4M-B
D10	8-719-106-08	DIODE RD6.2M-B2
D11	8-719-939-02	DIODE SVC203CP
D12	8-719-106-44	DIODE RD9.1M-B2
D51	8-719-939-02	DIODE SVC203CP
F1	1-507-410-00	RECEPTACLE (F TYPE)(RF/DC OUT 1)
F2	1-507-410-00	RECEPTACLE (F TYPE)(RF/DC OUT 2)
IC1	8-759-998-71	IC BA3308F
IC2	8-759-632-07	IC M5237L
IC3	8-752-037-91	IC CXA1332M
J1	1-562-916-41	JACK, PIN 2P (AUDIO IN A)
J2	1-507-792-00	JACK (AUDIO IN B)
J3	1-569-662-11	JACK, PIN 1P (TO ADDITIONAL MODULATOR)
J4	2-136-288-01	LUG
J5	2-136-288-01	LUG
JW1	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW2	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW3	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW4	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW5	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW6	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW7	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW8	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW9	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW10	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW11	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW12	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW13	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW14	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW15	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW16	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW17	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW18	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW19	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW20	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW21	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW22	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW23	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW24	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW25	1-216-296-00	METAL GLAZE 0 5% 1/8W
JW30	1-216-295-00	METAL GLAZE 0 5% 1/10W
JW31	1-216-295-00	METAL GLAZE 0 5% 1/10W

Ref.No.	Part No.	Description
L1	1-412-400-31	INDUCTOR 68UH
L2	1-412-400-31	INDUCTOR 68UH
L11	1-406-333-11	COIL (OSC)
L12	1-408-788-21	INDUCTOR CHIP 82UH
L51	1-406-334-11	COIL (OSC)
L52	1-408-787-00	INDUCTOR CHIP 68UH
PS1	⚠1-532-686-21	LINK, IC
Q1	8-729-271-22	TRANSISTOR 2SC2712-G
Q2	8-729-271-22	TRANSISTOR 2SC2712-G
Q3	8-729-920-97	TRANSISTOR 2SB1187-EF
Q12	8-729-200-87	TRANSISTOR 2SC2714-Y
Q13	8-729-271-22	TRANSISTOR 2SC2712-G
Q14	8-729-271-22	TRANSISTOR 2SC2712-G
Q15	8-729-271-22	TRANSISTOR 2SC2712-G
Q52	8-729-200-87	TRANSISTOR 2SC2714-Y
Q53	8-729-271-22	TRANSISTOR 2SC2712-G
Q54	8-729-271-22	TRANSISTOR 2SC2712-G
Q55	8-729-271-22	TRANSISTOR 2SC2712-G
R1	1-216-133-00	METAL GLAZE 3.3M 5% 1/10W
R2	1-216-019-00	METAL GLAZE 56 5% 1/10W
R3	1-216-188-00	METAL GLAZE 390 5% 1/8W
R4	1-216-025-00	METAL GLAZE 100 5% 1/10W
R5	1-216-043-00	METAL GLAZE 560 5% 1/10W
R6	1-216-043-00	METAL GLAZE 560 5% 1/10W
R7	1-249-417-11	CARBON 1K 5% 1/4W
R8	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R9	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W
R10	1-249-409-11	CARBON 220 5% 1/4W
R12	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W
R13	1-216-025-00	METAL GLAZE 100 5% 1/10W
R14	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R15	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W
R16	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R17	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R18	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R19	1-216-025-00	METAL GLAZE 100 5% 1/10W
R20	1-216-111-00	METAL GLAZE 390K 5% 1/10W
R21	1-216-025-00	METAL GLAZE 100 5% 1/10W
R22	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R24	1-216-669-11	METAL CHIP 5.6K 0.50% 1/10W
R25	1-216-659-11	METAL CHIP 2.2K 0.50% 1/10W
R26	1-216-037-00	METAL GLAZE 330 5% 1/10W
R27	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W
R28	1-216-043-00	METAL GLAZE 560 5% 1/10W
R29	1-249-434-11	CARBON 27K 5% 1/4W

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description
R30	1-216-079-00	METAL GLAZE 18K 5% 1/10W
R31	1-249-434-11	CARBON 27K 5% 1/4W
R32	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W
R36	1-216-049-00	METAL GLAZE 1K 5% 1/10W
R37	1-216-685-11	METAL CHIP 27K 0.50% 1/10W
R38	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R39	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W
R46	1-216-013-00	METAL GLAZE 33 5% 1/10W
R47	1-216-019-00	METAL GLAZE 56 5% 1/10W
R49	1-215-457-00	METAL 33K 1% 1/6W
R50	1-215-436-00	METAL 4.3K 1% 1/6W
R52	1-216-055-00	METAL GLAZE 1.8K 5% 1/10W
R53	1-216-025-00	METAL GLAZE 100 5% 1/10W
R54	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R55	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R56	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R57	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W
R58	1-216-081-00	METAL GLAZE 22K 5% 1/10W
R59	1-216-025-00	METAL GLAZE 100 5% 1/10W
R60	1-216-111-00	METAL GLAZE 390K 5% 1/10W
R61	1-216-025-00	METAL GLAZE 100 5% 1/10W
R62	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W
R64	1-216-669-11	METAL CHIP 5.6K 0.50% 1/10W
R65	1-216-659-11	METAL CHIP 2.2K 0.50% 1/10W
R66	1-216-037-00	METAL GLAZE 330 5% 1/10W
R67	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W
R69	1-249-434-11	CARBON 27K 5% 1/4W
R70	1-216-079-00	METAL GLAZE 18K 5% 1/10W
R71	1-249-434-11	CARBON 27K 5% 1/4W
R72	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W
R78	1-216-089-00	METAL GLAZE 47K 5% 1/10W
R79	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W
R86	1-216-013-00	METAL GLAZE 33 5% 1/10W
R87	1-216-019-00	METAL GLAZE 56 5% 1/10W
R88	1-216-035-00	METAL GLAZE 270 5% 1/10W
R89	1-216-188-00	METAL GLAZE 390 5% 1/8W
R90	1-216-029-00	METAL GLAZE 150 5% 1/10W
R91	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W
R92	1-216-073-00	METAL GLAZE 10K 5% 1/10W
R93	1-216-025-00	METAL GLAZE 100 5% 1/10W
R94	1-216-190-00	METAL GLAZE 470 5% 1/8W
R95	1-216-022-00	METAL GLAZE 75 5% 1/10W
R96	1-216-025-00	METAL GLAZE 100 5% 1/10W
R97	1-216-190-00	METAL GLAZE 470 5% 1/8W
R98	1-216-022-00	METAL GLAZE 75 5% 1/10W

Ref.No.	Part No.	Description
RV11	1-230-868-11	RES, ADJ, METAL GLAZE 2.2K
RV51	1-230-868-11	RES, ADJ, METAL GLAZE 2.2K
S1	1-572-004-11	SWITCH, PUSH (POWER)
S2	1-570-898-11	SWITCH, SLIDE (INPUT SELECT)
S3	1-570-898-11	SWITCH, SLIDE (SOUND MODE)
S4	1-570-815-11	SWITCH, SLIDE (MODULATOR MODE)
S5	⚠1-570-173-21	(E)...SWITCH, VOLTAGE CHANGE (VOLTAGE SELECTOR)
T1	⚠1-450-186-11	(E).....TRANSFORMER, POWER
T1	⚠1-450-187-11	(AEP)...TRANSFORMER, POWER

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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General Audio Group

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